

PROCEEDINGS
OF THE
ROYAL SOCIETY OF EDINBURGH.

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EIGHTY-FIRST SESSION.

Monday, 23d November 1863.

Dr CHRISTISON, V.P., in the Chair.

The following Council were elected:—

President.

HIS GRACE THE DUKE OF ARGYLL, K.T.

Vice-Presidents.

Sir DAVID BREWSTER, K.H.
Dr CHRISTISON.
Professor KELLAND.

Hon. LORD NEAVES.
Principal FORBES.
Professor INNES.

General Secretary,—Dr JOHN HUTTON BALFOUR.

Secretaries to the Ordinary Meetings.

Dr LYON PLAYFAIR, C.B.
Dr GEORGE JAMES ALLMAN.

Treasurer,—DAVID SMITH, Esq.

Curator of Library and Museum,—Dr DOUGLAS MACLAGAN.

Councillors.

E. W. DALLAS, Esq.
Rev. L. S. ORDE.
Professor TAIT.
A. CAMPBELL SWINTON, Esq.
Dr WILLIAM ROBERTSON.
Dr E. RONALDS.

T. C. ARCHER, Esq.
W. F. SKENE, Esq.
A. KEITH JOHNSTON, Esq.
Rev. Dr STEVENSON.
Dr STEVENSON MACADAM.
Hon. LORD JERVISWOODE.

Monday, 7th December 1863.

Professor Innes, one of the Vice-Presidents, delivered the following Opening Address :—

GENTLEMEN,—The opening of our Session requires that I should lay before you the state and prospects of our Society, which I hope may to some extent be considered the criteria of the state and prospects of the sciences which it cultivates.

The Society has lost since the commencement of last Session by death, six Fellows, viz.,—Robert Allan, Esq., Beriah Botfield, Esq., Dr James Keith, Dr David Boswell Reid, Professor Connell of St Andrews, Professor Mitscherlich of Berlin; and by resignation, two, the Rev. G. V. Faithfull and D. R. Hay, Esq.

In room of whom the Society has elected twenty-five new Fellows, viz.,—Professor Blackie, William Brand, Esq., W.S., Robert Campbell, Esq., advocate, Dr Hugh F. C. Cleghorn, India, Charles Cowan, Esq., W. Dittmar, Esq., Dr J. Matthews Duncan, the Right Hon. Lord Dunfermline, Professor Everett, Nova Scotia, James Hannay, Esq., William Jameson, Esq., India, Hon. Lord Jerviswoode, Charles Lawson, Esq., Hon. G. Waldegrave Leslie, G. R. Maitland, Esq., W.S., Edward Meldrum, Esq., Rev. Dr Nesbit, Hon. Lord Ormidale, David Page, Esq., Dr A. Peddie, James Sanderson, Esq., Deputy-Inspector of Hospitals, Dr John A. Smith, Dr Murray Thomson, Dr J. G. Wilson, Dr John Young.

Our roll, therefore, stands thus :—The number of Fellows in 1862 was 258, of which we have lost by death 6, by resignation 2=8, leaving 250. To which add the new Fellows, 25, making the whole number of the Fellows of our Society 275, a larger number than has appeared on the list for many years.

I am enabled, chiefly through the active kindness of our Secretaries, to offer a few notices of the members we have lost, during the past Session.

ROBERT ALLAN, son of Mr Thomas Allan, a banker in Edinburgh, a Fellow of the Society, and for many years Curator of its Museum and Library, and well known as an early and successful collector of a fine cabinet of minerals, was born in 1806, and educated at the High

School and University of Edinburgh. He inherited his father's taste for minerals, and while still a youth followed out the study in extended travels in company with Professor Haidinger, who introduced him to the acquaintance and to the cabinets of all the chief foreign mineralogists—among others, Berzelius and Mitscherlich.

Mr Allan passed advocate in 1829, but never practised, and was admitted a Fellow of this Society in 1832. He was also a member of the Geological Society of London.

Mr Allan published in 1834 a *Manual of Mineralogy*, the classification founded on the external character or natural historical arrangement.

In 1837 he edited a fourth edition of "Phillips' Mineralogy," in which he added notices of 150 new minerals.

On his return from an excursion to the volcanic district of Italy and Sicily, Mr Allan presented to this Society a set of specimens of volcanic rocks of the Lipari Isles, with a descriptive notice, an abstract of which is in our *Transactions*, of date 16th January 1831.

He communicated an account of a visit to the Geysers and Hecla to the British Association at Glasgow, in 1855.

Mr Allan died in consequence of a fall in his garden.

BERIAH BOTFIELD was of a Shropshire family, in which county his grandfather, Thomas Botfield, made his large fortune as a manager and lessee of the Dawley Collieries. Thomas's third son inherited Norton Hall, near Daventry, in Northamptonshire, and lived the life of an English sporting squire. He married Charlotte, daughter of William Withering, M.D., F.R.S., the author of "The Botanical Arrangement of British Plants." The only child of that marriage was Beriah, the subject of the present notice, who, in addition to his father's property, inherited the estates of both his uncles, and had become before his death a man of very large fortune.

Beriah was born 5th March 1807, and succeeded his father in 1813. He was educated at Harrow and Christ Church, where he took his Bachelor's degree in 1828.

After leaving Oxford he made a tour in the Highlands of Scotland, a journal of which he printed for private circulation,—printed at Norton Hall, 1830, 12mo.

He was High Sheriff of Northamptonshire in 1831.

In 1840 he was elected Member for Ludlow, and again in 1841.

In 1847 he was beaten by the Whig candidate.

In 1857 he was solicited to stand again, and he sat in Parliament for Ludlow for the rest of his life.

Mr Botfield was a member of the Royal Society of London, the Royal Geographical Society, Royal Institution, Society of Arts, of the Antiquaries of London, Scotland, and Copenhagen, of the Royal Irish Academy, l'Institut d'Afrique, and of all the principal Societies in the Kingdom, and of a great number of literary Clubs,—as the Roxburghe, Bannatyne, Maitland, Spalding, Surtees, Abbotsford, Camden, Percy, *Ælfric*, Hakluyt, Cheetham; to most of which he gave valuable contributions, his part being generally to defray the expense.

In addition to these, and some smaller tracts printed for private circulation, Mr Botfield published "Notes on the Cathedral Libraries of England," from a personal examination, 1849; "Prefaces to the First Editions of the Greek and Roman Classics, and of the Sacred Scriptures," 1861. Large 4to.

Another work, for which he was making collections when he died, and which would have been of great interest and value, was intended to illustrate the history of the old monastic libraries of England. A collection of the extant catalogues and inventories of these was already in type, to which he meant to add the catalogues of other Middle Age libraries. His collections, made for these objects will, it is feared, be lost to the world by his death. He had previously edited (in 1838), for the Surtees Society, catalogues of the Library of Durham Cathedral, at various periods.

In 1858, Mr Botfield printed, for private circulation, *Stemmata Bottevilliana*, a large volume illustrating the descent and antiquities of all the Bottevilles, Thynnes, and Botfields.

He was a liberal collector of pictures, and was also known as a zealous book-hunter.

Mr Botfield married Isabella, daughter of Sir Baldwin Leighton, Bart., but left no family; and has entailed a considerable part of his property on the second son of the Marquis of Bath, in respect of a very old but perhaps real connexion between his family and the Thynnes.

JAMES KEITH, second son of William Keith of Corstorphine Hill, accountant in Edinburgh, was born 29th November 1783, and was educated at the High School and University of Edinburgh. He was apprentice to Messrs Bell, Wardrope, and Russell; went to London in 1804, and attended the London Hospital and Guy's. Was surgeon of the Berwickshire Militia for two or three years, which he resigned on entering into partnership with Dr Andrew Wardrope, which connection terminated by Dr Wardrope's death in 1822.

Mr Keith took the degree of M.D. in the University of Edinburgh in 1804, and he became a Fellow of the College of Surgeons in 1810. He was physician to the Deaf and Dumb Institution for many years. From the extreme shyness of his disposition, his worth and ability were known only to a limited circle of intimate friends. He died 12th May 1863. His widow and two sons survive—William Alexander, M.A. Oxon., and Charles Maitland.

DAVID BOSWELL REID was the second son of Dr Peter Reid, physician in Edinburgh. His mother, Christian Arnot, was the eldest daughter of Hugo Arnot of Balcormo, advocate and antiquary, well known to the last generation by his book on the history of Edinburgh and his collection of Scotch criminal trials—and perhaps still better by the extraordinary attenuated, almost skeleton, figure of the old gentleman preserved to us in Kay's Portraits. Dr Peter Reid (whose mother was a Boswell of the Balmuto family) was the editor of Dr Cullen's "First Lines of the Practice of Physic," 1802. A new edition was published, with supplementary notes, in 1810. He was also the author of a little duodecimo volume, entitled "Letters on the Study of Medicine and on the Medical Character, addressed to a Student," Edin., 1809. Besides the subject of my present notice, Dr Peter Reid had two sons,—Dr William, a lecturer in Edinburgh on the practice of Medicine, and Dr Hugo, well known as the author of several popular works, the last of which is a modest and temperate memoir of his distinguished brother, to which I beg to acknowledge my obligation.

David Boswell Reid was educated at the High School and University of Edinburgh. At the former, Mr Pillans, the rector, has mentioned him as "among the head boys of the Rector's class."

While a medical student he became a member of the Royal Medical Society, of which he was chosen senior president in 1826-27, his junior being James Kay, now Sir James Kay Shuttleworth.

In 1827, Mr David Reid commenced a course of practical chemistry, which was very useful and very popular. He aimed at enabling each student to familiarise himself, by experiments made under the directions of a teacher, with the properties of the chief chemical substances, and the phenomena attending their action on each other.

After much approval in his extra-mural lecture-room, he joined Dr Hope in the College, and was again quite successful in the object of his course. But the Professor and Assistant had some misunderstandings, which led Mr Reid to leave the College, and renew his independent lectures, which were highly appreciated—attended by all classes,—the young ambitious student,—the veteran philosopher and man of science,—the man of intelligence feeling the want of science. On his benches met Dr Chalmers and Sir John Leslie, Professors George Joseph Bell and Pillans, Dean Ramsay and Mr Combe.

After the burning of the Houses of Parliament, and in contemplation of a new building, when a committee of the Commons was inquiring on the subject of its ventilation and acoustics, Dr Reid was examined as a witness, from having devoted much attention to those subjects, and having shown excellent examples of his skill, first in his own lecture-room, and, later, in the great temporary edifice, erected 15th September 1834, in the High School ground, for the Edinburgh dinner to Lord Grey, at which 2768 persons were present, and 240 ladies in the gallery, and each individual speaker was distinctly heard.*

The result of his examination was, that Dr Reid was employed to direct the ventilation and acoustics of the temporary House of Commons in 1836. It is not pretended that his plans gave universal satisfaction to the 700 members, each of whom had a different notion, and of course a peculiar constitution of body to be suited. But, after ten years' experience, in 1846, a fair committee of the House reported as to "the great improvement effected," and "concurred in the general opinion in its favour."

* The Pavilion was 118 feet in length by 101 feet in breadth.

In 1840 arrangements were made for Dr Reid settling in London, and, while taking charge of ventilating the temporary House of Commons, superintending also the ventilation of the new building then in progress. This brought Dr Reid necessarily into close contact with the architect of the new palace, Mr Barry, and unfortunately they did not agree. The difference got worse and worse, till in 1845 they were no longer on speaking terms, and every detail of such extensive operations had to be settled by correspondence,—a state of things which could not be allowed to last. The quarrel broke out in some strong expressions of Dr Reid,—a prosecution for libel by Mr Barry,—a pretty general attack on Dr Reid by the public press, and a Reply by him to “*The Times*” newspaper [1845-47].

In 1852 a negotiation was entered into, by which the Government proposed to secure Dr Reid’s services permanently, and to throw the ventilation of the whole buildings of the Houses under his charge,—one part of which, the House of Lords, had hitherto been managed by Mr Barry on a different system,—but “these negotiations were abruptly broken off.” In fact, Dr Reid was turned off, after sixteen years successful service, and, as his brother tells us, “a small sum was given to him as some compensation for the loss which he had sustained. His friends who knew his whole career, and the proceedings connected with his removal to London, to take the charge of ventilating the Houses of Parliament, were of opinion that the sum awarded was totally inadequate to compensate for the sacrifices he had made.”

Dr Reid went to New York in 1855. He delivered lectures in the Smithsonian Institution there, and at Boston. In the beginning of this year (1863), he received the appointment of Inspector of Military Hospitals, but soon after, while engaged in an official journey, he died suddenly at Washington, on 5th April 1863.

Dr Reid’s system of ventilating great buildings, where crowds habitually assembled, consisted in forcing in a current of air by means of a powerful engine—the air being previously washed to free it from dust and to give it the requisite moisture. Some of his experiences are curious.

“The house is heated to 62° before it is opened, and maintained in general at a temperature between 63° and 70°, according to the

velocity with which the air is permitted to pass through the house. This velocity is necessarily regulated by the numbers present, the temperature to which the air can be reduced in warm weather, and the amount of moisture which it may contain when the quantity is excessive. Some members are much more affected by an excess or deficiency of moisture than by alterations of temperature. In extremely warm weather, by increasing the velocity, air even at 75° may be rendered cool and pleasant to the feelings."

He goes on to say—"The temperature may always be advantageously increased and the velocity diminished before the usual dinner hour. After dinner, other circumstances being the same, the temperature should be diminished, the velocity increased, and the amount of moisture in the air reduced. During late debates, as they advance to two, three, four, or five in the morning, the temperature should be gradually increased as the constitution becomes more exhausted, except in cases where the excitement is extreme."

Next to the Houses of Parliament, Dr Reid's greatest and most successful undertaking of ventilation was the St George's Hall at Liverpool, in which immense building, on some occasions, there have been as many as 4500 persons for about ten hours; the air during all that time having been supplied to all that multitude in a pure state, and in a comfortable and agreeable condition as to temperature and moisture.

Dr Reid superintended while in this country the arrangements for ventilating the royal yacht, "The Victoria and Albert," and the steamships used in the expedition to the Niger, in both instances to the entire satisfaction of his employers; and since going to America, he was employed in the ventilation of a Russian frigate, "The Grand Admiral," built at New York

ARTHUR CONNELL, eldest son of Sir John Connell, Judge of the Admiralty Court, and author of a well known work on the Law of Scotland respecting Tithes, entered the High School of Edinburgh in 1804, and the University of Edinburgh in 1808, where he studied under Playfair, Leslie, Dugald Stewart, and Hope. From Edinburgh Mr Connell went to Glasgow College, where he studied under Jardine and Young, and, having obtained a Snell exhibition, went to Balliol College, Oxford, in 1812.

In 1817 Mr Connell passed advocate at the Scotch Bar, but he had from boyhood a remarkable turn for science, especially botany and chemistry, and he ultimately devoted himself exclusively to the latter science.

In 1840 he was presented to the Chair of Chemistry in the University of St Andrews.

In 1843 Mr Connell was candidate for the Chemistry Chair at Edinburgh, vacant by the death of Dr Hope, and though not successful, produced a collection of testimonials of the highest character. Most of these were the more worthy of attention as not made for the occasion and so in some degree influenced by private friendship. They are for the most part notices in the published works of eminent chemists and in scientific journals, of Mr Connell's chemical labours, and the papers in which these were announced and described.

Having failed in this object of his ambition, Mr Connell continued to study and teach his favourite science at St Andrews till 1856, when the fracture of a limb, and its effects upon a constitution already long enfeebled, completely incapacitated him from active duty.

Mr Connell became a member of this Society in 1829, from which time till 1843 he contributed to the Transactions, or published in the pages of the "Edinburgh Philosophical Journal," memoirs to the number of 29.

His chief merit lay in his skill and unrivalled accuracy as a mineral analyst. To him we are indebted for several new mineral species—for the discovery in the minerals Brewsterite and Harmotome of the earth barytes in combination with silicic acid—that earth previously having been found combined only with the sulphuric and carbonic acids; while his ascertaining the constitution of the mineral Greenockite, *on one grain* of the substance, displayed a dexterity seldom if ever surpassed.

Mr Connell also engaged in somewhat more ambitious researches on the voltaic decompositions of alcohol, ether, and other liquids, and has presented us with an instrument for ascertaining the dew point, superior in several respects to that generally used.

Mr Connell was of a very retiring nature, modest, gentlemanly, and gentle in disposition. He expired peacefully on 31st of October last.

EILARD MITSCHERLICH, born 7th January 1794, at Neuredé, in the Grand Duchy of Oldenburgh, where his father was a minister of the Lutheran Church, was educated at Heidelberg and Paris, and studied afterwards at Göttingen. His first objects of study were language and ethnology. Later in life he devoted himself more to natural science, and especially chemistry. He assisted Berzelius at Stockholm for some years.

In 1821 he was appointed Professor of Chemistry in the University of Berlin, and attached to the Friedrich Wilhelm Institut. His lectures were held in high estimation, and attended by numerous classes of students.

In 1828 he was elected an Honorary Member of this Society, and in 1829 was awarded a Medal by the Royal Society of London for his discourses "regarding the laws of crystallization and the properties of crystals."

In 1852 Mitscherlich was elected an Associate Member of the Institute of France. His great European reputation is founded on his studies on crystallization and some ingenious adaptations of instruments for practical chemistry. His text-book—*Lehrbuch der Chemie*—has gone through a great many editions.

Mr Mitscherlich died in the present year.

His experiments and disquisitions tended to establish the rule that bodies crystallizing in the same shape (isomorphous) have an analogous chemical composition—throwing great light on chemical classification, and giving us one of the greatest generalizations (after the Atomic theory) which chemistry has gained by the researches of philosophers.

When I have laid before you these slender memorials of our deceased brethren, I may claim to have discharged the real duty of my office to-night. If indeed I were worthy to fill the chair in which your favour has placed me,—if I had, like some of our distinguished Fellows, a knowledge of all science, or even a special acquaintance with any one,—it would be my duty to submit to you a survey, or at least some outline, of the progress of science among us and among our neighbours. But for such a task you know me to be ill qualified. I should not venture to speak in the language of science anywhere, and least of all in the presence of the men whom I now see around me.

There are subjects, however, in which scientific men and men of no science feel an equal interest—which must engage the attention of every person of common intelligence.

Among these is the great step recently made in African geography—the discovery of the head of the Nile. No other geographical discovery can ever compare with this. It is not the solution of a puzzle in the Geographical Society. It is removing the “*Impossible*”—the very type of impossibilities—from our books. It is opening to the whole world the mystery which was a mystery even to the initiated. Poets have lost a topic! What philosophers and historians guessed and speculated about, is now written down plain on the map. That is now clear which has been wondered at since men began to ask the meaning of anything. We have lost the oldest subject of curiosity in the world!

A grave, prosaic mind loses its equanimity, and gives way to the charm of romance at the thought of the veil being raised that has for so many thousands of years covered the head of the great mysterious river which was worshipped of old—not more for its beneficent overflowings, regular as the seasons, yet unaccountable, than because of its unknown, unapproachable source.

I do not mean that the facts which our travellers have brought to light run counter to the conclusions of former geographers. On the contrary, I think the body of history on the one hand, the speculations of science on the other, had prepared the world for such a discovery. Glancing at the ancient, I mean the classical authorities, without arraying them before you, I may say that among innumerable fables and much unphilosophical reasoning, they almost concur in giving the Nile its source in a mighty lake—some say two immense lakes—fed by periodical rains,—fed also, say some, by subterraneous streams flowing from the west (these subterraneous rivers were favourites with the wonder-loving naturalists of old). This great lake was further believed to lie at the foot of lofty, snow-covered mountains, named the Mountains of the Moon. Herodotus indeed demurs to the snow. The Reservoir Lakes become immeasurable marshes in some of the accounts. Indeed I should despair of producing a *catena* of witnesses for any single point of the statement; but such as I have described was nearly the mind of ancient Greece and Rome, speaking on the information obtained in Egypt.

It is more remarkable to find a similar shadow of the truth from a different quarter, and perhaps of an earlier date. The ancient inhabitants of India seem to have felt the same interest, and to have had an equal glimmering of the course of the Nile. In a well-known paper by Mr Wilford, in the *Asiatic Researches*, we have a sort of abstract of the ancient Indian belief concerning the Nile, drawn from the Puráñas and other Hindu or Sanscrit books.

The name of the river in those most ancient books is *Kali*, black. (Though Homer names the river *Aegyptus*, it was known to ancient Greeks as *Μελας*.) According to the same authorities, that famous and holy river takes its rise from the lake of the gods, thence named Amara or Deva, Saróvera in the region of Sharma or Sharmasthan, between the mountains of Ajagara and Sitanta, part of Soma-giri, or the Mountains of the Moon, the country round the lake being called Chandristhan or Moon-land. The Hindus believed in a range of snow-covered hills in Africa.

From thence the Kali flows into the marshes of the Padma-van, and through the Nishada Mountains into the land of Barbara; whence it passes through the mountains of Hemacáta; then entering the forests of Tapas (or Thebais) it runs into Kantaka-desa, or Mitha-sthan, and through the woods emphatically named Aranya and Atavi into Sanchabdhí (or our Mediterranean).

From the country of Pushpaversha, it received the Nanda or Nile of Abyssinia, the Asthimati or smaller Krishna, which is the Takazzi or little Abay, and the Sanchanaga or Mareb.

The Ajagara Mountains, which run parallel to the eastern shores of Africa, have at present the name of Lupata, or the back-bone of the world. Those of Sitanta are the range which lies west of the lake Zambre or Zaire, words not improbably corrupted from Amara or Sura. This Lake of the Gods is believed to be a vast reservoir which, through visible or hidden channels, supplies all the rivers of the country.

The Hindus, for mythological purposes (says Mr Wilford), are fond of supposing subterranean communications between lakes and rivers, and the Greeks, we know, had the same leaning.

We really had made little progress beyond these ancient guesses, till in the year 1858 Captains Speke and Burton saw and sailed upon the great lake Tanganyika, 600 miles from the coast at

Zanzibar. The lake is narrow, but 300 miles long, and 1800 feet above the level of the sea. Very soon after, Captain Speke alone had the glory to see and bear witness to the great inland sea which he has named Victoria. Having only seen this mighty lake, and being obliged to leave it unexplored, Captain Speke made haste to return to it, and this time in company with his old comrade and brother-in-arms Captain Grant, and through toils and dangers which men like these love almost for their own sake, they, together, reached in 1861 the Victoria Lake, which Speke had discovered three years earlier.

It happened (and such coincidences are frequent in science) that at the very time when Speke and Grant were fixing the bearings and heights of the great lake and its mountains, Baron von Decken and Mr Thornton measured and estimated the altitude of *Kilima Nearo*, one of a mountain range to the eastward of our travellers' route, at 20,000 feet, while the snow line descended below 16,000.

At present our information is necessarily meagre, but on the testimony of these two veteran travellers, furnished as they were with instruments for observation, we have some actual certainty, and room for infinite speculation.

The Victoria Sea of fresh water is about 150 miles square. The equator line runs through it, though nearer its north shore. Its waters are 3563 feet above the sea level. It is skirted, if not quite surrounded, by ranges of mountains of 10,000 feet high. Without farther evidence, independent even of the high authority of Captain Speke's opinion, we receive as certain that in the Victoria great lake is the source, or rather the great reservoir of the Nile, for of course the lake is fed by numerous streams, in fact by a stream from every valley among the surrounding mountains, and then it follows that the White Nile, not the Blue Nile as Bruce believed, is the chief of the two streams that join at Kartom, lat. $15^{\circ} 30'$.

Thus was the mystery cleared up that had defeated the ingenuity and enterprise of philosophers and travellers, of kings and Cæsars, since the days of Herodotus.

Captain Speke thinks very highly of the country he has explored in a commercial and agricultural view. He found the people not all savage, but capable of intelligent interest and quite awake to kindness and friendship. But the country is everywhere thinly

peopled, and productive much beyond the wants of the population. Along the equator, at heights varying from 6000 to 12,000 feet, the travellers found a delicious climate, with abundance of water, and no excessive heat, full of cattle and corn. In the kingdom of Karagwé (lat. $1^{\circ} 40'$, elevation 5100 feet), the temperature for five months ranged from 60° to 70° at 9 morning. From what they could learn of the country to the westward of the lake, it preserves the same character for several hundred miles, and I know that Captain Speke believes there is a continuance of that which he calls the *Fertile Zone* almost to the coast of the Atlantic. He tells his friends he has "discovered a great fertile zone there, caused principally by the Mountains of the Moon, situated close to the equator, in the midst of the continent of Africa. These are great rain condensers. Round them are the sources of several rivers, the Nile on one side, the Tanganyika and the Congo on the other. The rains falling all round make that a fertile zone—the most fertile in the world. There is nothing in India or China to equal it."

It is in that direction the indefatigable traveller proposes to make his next expedition, and let us hope that in two years more we shall welcome Captain Speke returning from the mouths of the Congo.

I know not whether to congratulate or condole with the Society upon another advance in science, or whether that is to be called an advance which some consider a double trespass, a breaking down of the boundaries between geology and archæology, and overleaping the ancient landmarks which divided natural science from sacred history.

Certain well-known discoveries of hand-shaped weapons and implements, found along with the remains of some extinct animals, in undisturbed beds of a very ancient alluvial deposit both in France and in England, led the antiquary, whose department is limited to the human period, to seek to extend that period into what had hitherto been the exclusive province of the geologist; and the geologist again, driven to admit that these flint spear-points have been shaped by man's hand, and used upon (or among) the *Elephas primigenius*, the *Rhinoceros*, and other extinct animals whose teeth and bones now bear them company, has to seek for an extension of the period hitherto allotted for the operations and deposits which the race of man has witnessed.

This only brought out more palpably what geologists had for some time taught—had taught indeed almost as early as geology took the dimensions of a science—that the globe itself was immeasurably older than the age assigned for man.

That period—the creation of man—the age of man on the globe—had been early, and nearly unanimously fixed, by calculations based upon the data afforded by the Mosaic books.

Such calculations were necessarily more or less conjectural, founded on interpretations of archaic forms of language, and of words which might have different meanings. Numbers and figures were to be read in varying manuscripts, often from faulty copies; and although great men like Newton had satisfied themselves that the received age of the world and its inhabitants was the true one, new facts, of a science unknown to Newton, had shaken that opinion, and it seemed probable that the Biblical scholar, the student of sacred history, in the view of geological facts, would, in the first place, abandon the position that the age of the creation, the antiquity of the earth, was to be determined by the interpretation of the Mosaical books; and, *secondly*, that he would not shut his eyes to new evidence offered upon the questions, whether the Mosaical books intended to affirm the age of man upon the globe, and whether the interpreters of those books had accurately and precisely and definitely ascertained their meaning and intention in that matter.

I should perhaps do better in using the terms of the latest authority on this subject, which comes with "Oxford" on its title page to vouch its orthodoxy, and with the sound sense of our friend Dr Hannah to commend it to our acceptance:—*

"It is surely mere misapprehension to suppose that the revelation with which Moses was really entrusted could traverse the path of the modern geologist, or contain any thing that would either confirm or contradict his readings of those buried rocks. From whichever side the error comes, we are bound to shake ourselves free from it, not by saying with some that God cared not though His instruments should make mistakes on scientific subjects, but by pointing out that there can be no error where there is no assertion, and that a purely theological revelation contains no assertion which falls within the proper sphere of science."

* Dr Hannah's Bampton Lectures. Oxon., 1863.

I say then the two parties, the scientific inquirer and the Mosaical scholar, both earnest for truth, would have come to some understanding, not surely to conceal or shut out the truth, but to give each full license to inquire and experiment, and to draw all legitimate inferences from facts discovered ; for after all, the disputes between theologians and geologists relate rather to inferences from facts than to the reality of the facts themselves. The theologian infers certain truths from the words of the first chapter of Genesis ; the geologist infers certain notions from what he sees in an open quarry. The inferences are mutually contradictory ; but as the theologian and the geologist are both capable of drawing false inferences, such inferences may be contradictory and neither may be true. A new light on the meaning of the word "Day" in the Mosaic language might end the controversy ; so might some evidence that the best instances of hand-formed flint implements found in ancient drift were fictitious and fraudulent.

We must suppose that a candid student of the Divine books will take what help is in his power for explaining their difficulties, and, be sure, he will not neglect the testimony of the rocks—the history of creation written in other letters but by the same Author. So a candid geologist, who reflects that the purpose of Moses was clearly not to teach natural philosophy, but to inculcate and enforce the worship of the true God, will acknowledge that the order of creation given in Genesis does agree marvellously with the inverse order of the fossils actually found—plants, marine or aquatic animals, birds, mammals, man.

I say these disputants might have come to terms—explaining the Scripture history of the creation by the help of a careful and reverent study of the created universe. But a third party has lately rushed among the combatants, and now fight with two-edged weapons. These are theologians too—at least they are churchmen, and Hebraists, and mighty arithmeticians ; but, with a singular view of their duty to their Church, they cavil at the foundations of its history and doctrine, and think it necessary to tell the world so. These critics insist, that no interpretation, construing of a phrase, word, or numeral of the Mosaical books shall be admitted—that all shall stand or fall together ; and then, having picked out some words, especially some numbers, which they judge erroneous—

though not affecting a single point of doctrine or morals, or the essentials of history—they say the books ascribed to Moses are devoid of authority, and must be abandoned!

That is not the way in which we are accustomed to read any ancient history; and, though different canons are used for criticising the inspired writers from those applied to other historians, yet, as to the mere text, the books of Moses are entitled beyond others to a fair and liberal construction, as the most ancient books in the world, and as having passed through an infinite number of transcriptions and translations.

But I must declare my entire concurrence with Dr Hannah, that “it is a dangerous and mistaken policy to raise these disputes to adventitious importance, by treating them as though they necessarily involved the issue of our highest interests.”

For the persons of tender conscience, who feel themselves constrained “to build up those scattered fragments of difficulty into a coherent edifice of doubt,” they would themselves surely feel easier, as it would be a relief to the world, who are judging in the quarrel, if they could cease to be members of a Church which founds so confidently on the Mosaical history. They would *assail* with more satisfaction if they had not promised to *defend*.

For the geologist, if my voice were wanting to encourage him, I would bid him go forward, cautiously, reverently, yet without fear. Let him test the evidence with all care before publishing a discovery. He must consider he has everything to prove, and he should assert nothing without evidence, and take nothing for granted. We want proof of the antiquity of the Drift-deposit, and of the fossils contained in it belonging to the extinct animals named. We want proof that the flints are hand-wrought, and not chipped accidentally in the rolling drift. Much more, we desire proof that they *were* found there, and not *placed* to be found by some cunning quarryman. It is not only the flint instrument but its manufacture, its chipping into shape, that must be tested. Is the fracture of the flint such that it might have been made many thousand years ago?

Farther, the geologist should publish to the world the evidence of his facts; for the inquiry is one that concerns the public, and in

which the public take an interest. But why should I intrude my advice upon men who have shown they know well what is required at their hands in a momentous inquiry? Nine of the most eminent geologists of France and England met in friendly conference at Paris, and, later, at Abbeville, to compare specimens, to test the evidence, to do everything for ascertaining the truth; and they published the *procès-verbal* of their proceedings in the "Natural History Review" of last August, with the sanction of Dr Falconer's name, and others equally well known. It seems hardly to be doubted, that numerous frauds have been perpetrated upon the naturalists. When specimens are well paid for, they become plentiful, both in England and in France, but there may be means of detecting the impositions, and these means our geologists are using with all care. The iron horse-shoe, lately put forth among the primeval relics, has been, as I understand, withdrawn; the bones of elephant and other animals, bearing marks of human hands, are not yet accepted by these naturalists. As to the Abbeville jaw-bone of a man, whose jaw must have ceased chewing long before the flood, there is but one opinion in England, which I am informed by Mr Evans is also gaining ground in France—that the whole thing was an impudent imposition. Mr Prestwich, who was once a believer, published his recantation in the last Quarterly Journal of the Geological Society.

It may be permitted me, perhaps, as one of the public, to offer one more advice to the naturalist. He must take care not only that his reasoning is logical, his inferences cautious and careful, but he will do well to avoid even the appearance of disputing for victory. Science has no enemies if its votaries do not raise them up by indiscretion and intemperance.

I have to apologise for occupying so much of your time, and for venturing rashly beyond the boundaries of my own line of study.

The following Gentlemen were duly elected Ordinary Fellows:—

ALEXANDER CRUM BROWN, M.A., M.D., D.Sc.

ALEXANDER WOOD, M.D., F.R.C.P.E.

The following Donations to the Library were announced:—

Abhandl. der königl. Gesellschaft der Wissenschaften zu Göttingen. 9ter u. 10ter Bände 1860-2. 4to.—*From the Society.*

Nova Acta Academiæ Cæsareæ Leopoldino-Carolinæ naturæ Curiosorum. Vol. XXVI, pars posterior, 1858. 4to.—*From the Society.*

Sitzungsberichte der kaiserl. Academie der Wissenschaften zu Wien—Mathematisch-naturwissenschaftliche Klasse. Jahrgang, 1862, Bände XLVI.-VII.; und Philosophisch-historische Klasse, Bände XL.-I, nebst Register zu Bänden XXXI.-XL.—*From the Academy.*

Denkschriften der kaiserl. Academie der Wissenschaften—Mathematisch-naturwissenschaftliche Klasse. XXIer Band. 4to.—*From the same.*

Società reale di Napoli: rendiconto dell' academia delle Scienze fisiche e mathematiche. Anno Imo. fascicoli 1-8. Anno IIIdo. fascicoli 1-3; e rendiconto delle scienze morali e politiche. Anni 1862-3. 4to.—*From the same.*

Positiones mediae stellarum fixarum in zonis regiomontanis a Besselio inter + 15° et + 45° declinationis observatarum ad annum 1825 redactæ, etc. auctore Maximiliano Weisse. 4to.—*From the Imperial Academy of St Petersburg.*

Observations météorologiques faites à Nijné-Taguilsk, années, 1861-2. 8vo.—*From the Russian Government.*

Transactions of the Zoological Society of London for 1861. Part III.; and 1862, Parts I., II., and III. 4to.—*From the Society.*

Proceedings of the same. Vol. IV., Part 7; and Vol. V., Parts I. and II. 8vo.—*From the same.*

Philosophical Transactions of the Royal Society of London for 1862. Parts I. and II. 4to.—*From the Society.*

Proceedings of the same for 1863. 8vo.—*From the same.*

Extension of the Triangulation of the Ordnance Survey into France and Belgium, &c. By Col. Sir H. James, R.E., &c. 4to.—*From the Author.*

Memoirs of the American Academy of Arts and Sciences. New Series. Vol. VIII., Part II. 4to.—*From the Society.*

Proceedings of the same. Conclusion of Vol. V. and commencement of Vol. VI.—*From the same.*

Journal of the Academy of Natural Sciences of Philadelphia. Vol. V., Part III. 4to.—*From the Academy.*

Proceedings of the Boston Society of Natural History. Vol. VIII., 1861-2. Vol. IX. 1862-3. 8vo.—*From the Society.*

Boston Journal of Natural History. Vol. VII. Nos. 1, 2, and 3. 8vo.—*From the same.*

Proceedings of the American Philosophical Society. Vol. IX., No. 69. 8vo.—*From the Society.*

Catalogue of the Library of the same. Part I. 8vo.—*From the same.*

Transactions of the same. Part III., Art. IV., "Intellectual Symbolism." By P. E. Chase, M.A. 4to.—*From the same.*

Astronomical and Meteorological Observations at the U. S. Naval Observatory during 1861. 4to.—*From the Observatory.*

Annual Report of the Trustees of the Museum of Comparative Zoology. 1862. 8vo.—*From the Trustees.*

Report of Lieut.-Col. J. D. Graham on Mason and Dixon's Line. 8vo.—*From the Author.*

Observations on the Genus *Unio*. By Dr Isaac Lea. Vol. IX. 4to.—*From the Author.*

Discussion of the Magnetic and Meteorological Observations at Gerard College Observatory from 1840-5. Second Section, comprising Parts IV., V., and VI. Horizontal Force. By Dr A. D. Bache. 4to.—*From the Author.*

Appendices XVI. and XXIII. to the above. 4to.—*From the same.*

Report of the Superintendent of the U.S. Coast Survey for 1859

and 1860. 2 vols. 4to.—*From the same.*

Ohio Agricultural Report for 1861. Second Series. 8vo.—*From the Smithsonian Institution.*

Annual Report of the Regents of the Smithsonian Institution for 1861. 8vo.—*From the same.*

On the Syllogism. No. V. By A. De Morgan, F.R.A.S. and C.P.S., &c. 4to.—*From the Author.*

Archaeologia. By the Society of Antiquaries of London. Vol. XXXIX. 4to.—*From the Society.*

Proceedings of the Royal Institution of Great Britain. Nos. 37 and 38. 8vo.—*From the Institution.*

Scheikundige Verhandelingen, tweede Deel, tweede Stuk door G. J. Mulder. 8vo.—*From the Author.*

Muir's Sanscrit Texts. Vol. IV.—*From the Author.*

Beobachtungen des Mars um die Zeit der Opposition, 1862, von Dr A. Winnecke. 4to.—*From the Author.*

Observations de la grande Nebuleuse d'Orion faites à Cazan et à Poulkova. Par O. Struve. 4to.—*From the Author.*

Proceedings of the Medico-Chirurgical Society of London. Vol. IV., Nos. 3 and 4. 8vo.—*From the Society.*

Atti dell' imp. reg. Istituto Veneto di Scienze, Lettere ed Arti dal Novembre 1862 all' Ottobre 1863. Tomo ottavo; Serie terza. Dispense quarta-nona. 8vo.—*From the Institute.*

Du Climat de Genève. Par E. Plantamour. 4to.—*From the Author.*

Résumé Météorologique de l'Année 1861 pour Genève et le Grand S. Bernard. By the same. 8vo.—*From the same.*

Biblical Natural Science. By Rev. John Duns. Parts VI.-XIII. 8vo.—*From the Author.*

Traforo dell' Alpi tra Bardoneche e Modane, 1863. 4to.—*From the Italian Government.*

Mémoire sur la loi du réfroidissement des Corps Sphériques, etc. Par J. Plana, Turin. 4to.—*From the Author.*

Memoirs of the Geological Survey of India, II. 4, and II. 5. 4to.—*From Dr Oldham.*

Catalogus Lichenum quos in Provincia Sondriensi et circa Novum Comum collegit, etc. Presbyter Martinus Anzi. 8vo.—*From T. C. Archer, Esq.*

Annales hydrographiques, Nos. 350-5. 8vo.—*From the Dépôt de la Marine.*

Bulletin de la Société de Géographie. 8vo.—*From the same.*

Cartes de la Pilote Française.—*From the same.*

Proceedings of the Nat. Hist. Society of Dublin. Vol. III., Parts I. and II. 8vo.—*From the Society.*

On the Generative System of *Helix aspersa et hortensis*. By Dr H. Lawson. 8vo.—*From the Author.*

Jahrbuch der kaiserl. königl. Geologischen Reichs Anstalt. XII. No. 4, and XIII. Nos. 1 and 2. Mit General Register der ersten 10 Bände. 8vo.—*From the Archivar of the Reichs-Anstalt.*

Bibliothèque de M. le Baron de Stassart léguée à l'Academie Royale de Belgique. 8vo.—*From the Academy.*

Sveriges Geologiska Undersökning. 1-5. With Maps. 8vo.—*From the Swedish Government.*

Proceedings of the Royal Horticultural Society. May to November 1863. 8vo.—*From the Society.*

Memoirs of the Royal Astronomical Society. Vol. XXXI. 4to.—*From the Society.*

Annales de l'Observatoire Royal de Bruxelles. Tome XV. 4to.—*From M. Quetelet.*

Note sur les Résultats fournis par une enquête relative à l'authenticité de la découverte d'une mâchoire humaine et des haches en silex dans le terrain diluvien de Moulin-Quignon. Par M. Milne-Edwards. 4to.—*From the Author.*

Ueber die Saurodipteren, Dendrodonten, Glyptolepiden u. Cheirolepiden des Devonischen Systems von Dr C. H. Pander. With 17 Plates. 4to.—*From the Russian Government.*

Monatsberichte der königl. Preuss. Akademie der Wissenschaften zu Berlin. Aus dem Jahre 1862. 8vo.—*From the Academy.*

Mittheilungen der naturforschenden Gesellschaft in Bern. Nos. 497-530. 8vo.—*From the Society.*

The Westminster Confession of Faith critically compared with the Holy Scriptures and Found Wanting. By James Stark, M.D., &c. 8vo.—*From the Author.*

Pinetum Britannicum. Part IV. Abies Hookeriana; Abies Patoniana. Folio.—*From Charles Lawson, Esq.*

Journal of Agriculture; July and October 1863. 8vo.—*From the Highland Society.*

Report on the Madras Military Fund, containing New Tables of Mortality, Marriage, &c., from 1808 to 1858. 8vo.—*From Samuel Brown, Esq.*

Proceedings of the Royal Meteorological Society. Vol. I., Nos. 6-8. 8vo.—*From the Society.*

Journal of the Proceedings of the Linnean Society. Vol. VII., Nos. 26, 27. 8vo.—*From the Society.*

The Canadian Journal of Industry, Science, and Art. Nos. 44-47. 8vo.—*From the Society.*

Journal of the Royal Dublin Society. No. 29. 8vo.—*From the Society.*

Journal of the Geological Society of Dublin. Vol. X. Part I. 8vo.—*From the Society.*

Monthly Returns of the Births, Deaths, and Marriages Registered in the Eight Principal Towns of Scotland for 1863. 8vo.—*From the Registrar-General.*

Quarterly Returns of the above Registered in the Divisions, Counties, and Districts of Scotland for 1863. 8vo.—*From the same.*

Quarterly Reports of the Meteorological Society of Scotland for 1863. 8vo.—*From the Society.*

Nyt Magazin for Naturvidensskaberne. Twelfth Volume, Parts I.-III. 8vo.—*From the Editors.*

Norsk-Forfatter Lexicon, 1814-56. Af Jens E. Kraft. Sjette Heft. 8vo.—*From the Editor.*

Norske Vaegtlodder fra fjortende aarhundrede beskrevene. Af C. A. Holmboe. 4to.—*From the Author.*

Taxidermi. For the use of the University of Christiania. 8vo.—*From the University.*

Peter Andreas Munch. Ved Paul Botten Hansen. 8vo.—*From the Author.*

Fredie Aars-Beretning om Fantesolket. Ved Eilert Sundt. 8vo.—*From the Author.*

Udsigt over Mineral Cabinet Opstilling og Storrelse. Af givet som Indberetning for 1861 fra Bestzreren. 8vo.—*From the same.*

Forhandlinger i Videnskabs-Selskabet i Christiania Aar, 1862. 8vo.—*From the Society.*

Ægyptische Chronologie. Von J. Lieblein. 8vo.—*From the Author.*

Det Kongelige Norske Frederiks Universitets Aarsberetning for Aaret 1861. 8vo.—*From the University.*

Aperçu des différents Méthodes de Traitement employées à l'hôpital de l'Université de Christiania contre la Syphilis constitutionelle. Par J. L. Bidenkap. 8vo.—*From the same.*

Committee-Beretning Angaaende Syphilisationen ved Steffens, Egeberg et Voss. 8vo.—*From the same.*

Det Kongelige Frederiks Universitets Halvhundredaars-fest. Sept. 1861. 8vo.—*From the same.*

Schriften der Universität zu Kiel. Aus dem Jahre 1862. Band IX.
4to.—*From the University.*

Abhandlungen der philosoph.-philologischen Classe der königl. bayerischen Akademie der Wissenschaften. 9ten Bandes 3te Abtheilung. 4to.—*From the Academy.*

Mathematisch-physikalische Classe von derselben. 9ten Bandes 3te Abtheilung. 4to.—*From the same.*

Denkrede auf Joh. Andreas Wagner, von Dr C. F. P. von Martius.
4to.—*From the same.*

Rede in der öffentlichen Sitzung der k. Akademie der Wissenschaften am 28 März 1863. Von Justus Freiherrn von Liebig.
4to.—*From the same.*

Ueber die deutschen Einheits-bestrebungen in 16 Jahrhundert, von dem königl. Universitäts Professor Dr Cornesius. 4to.—*From the same.*

Sitzungsberichte der königl. bayer. Akademie der Wissenschaften zu München, 1862, II. Heft. 3, 4, and 1863, I. Heft. 1-3.
8vo.—*From the same.*

Berichte über die Verhandlungen der königl. sächsischen Gesellschaft der Wissenschaften zu Leipzig; mathematisch-physische Classe, 1862, und philologisch-historische Classe, 1862. 8vo.
From the Society.

Die Schlacht von Warschau, 1856. Von Joh. Gust. Droysen.
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Ueber den Bau von Angiopteris. Von G. Mettenius. 8vo.—*From the same.*

Transactions of the Botanical Society, Vol. VII. Part III. 8vo.—
From the Society.

Phenomena attending the Fall of Meteorites on the Earth. By W. Haidinger, For. Mem. R.S. L. and E., &c. 8vo.—*From the Author.*

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From the Author.

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Bulletins de l'Académie Royale des Sciences, des Lettres, et des Beaux-Arts de Belgique. Tomes XIII. et XIV. 8vo.—*From the same.*

Mémoires Couronnés, etc., publiés par l'Académie Royale de Belgique. 8vo.—*From the same.*

Annuaires de l'Académie de Belgique. 1863.—*From the same.*

Annuaire de l'Observatoire Royal de Bruxelles. Par M. A. Quetelet. 16mo.—*From the Author.*

Bolide observée dans la soirée du 4 Mars 1863. Par M. A. Quetelet. 8vo.—*From the same.*

Etoiles filantes. Orages des mois d'Août et Septembre 1862. Direction des Courants électriques dans les corps des animaux. Par M. A. Quetelet. 8vo.—*From the same.*

Sur les étoiles filantes. Par E. Herrick et Ad. Quetelet. 8vo.—*From the same.*

Différence des temps entre Bruxelles et Vienne pour les époques critiques des Plantes et des Animaux. Par M. A. Quetelet. 8vo.—*From the same.*

Sur les Nébuleuses, etc. Par M. A. Quetelet. 8vo.—*From the same.*

Aurora boréalis du 14 au 15 Décembre 1862. Par M. A. Quetelet. 8vo.—*From the same.*

De la Variation annuelle de l'inclinaison et de la déclinaison magnétique, etc. Par M. A. Quetelet. 8vo.—*From the same.*

Climat de la Belgique. Par M. A. Quetelet. 4to.—*From the same.*

Etoiles filantes de période du 10 Août 1863. Par M. A. Quetelet. 8vo.—*From the same.*

On Time-Boundaries in Geological History, &c. By J. D. Dana, Esq. 8vo.—*From the Author.*

System der deutschen Katarakten insbesonders Bayern's. u. s. w. Von Dr Joh. Gistl. 8vo.—*From the Author.*

Systema Insectorum secundum Classes, Ordines, Genera, Species, scripsit Dr Joh. Gistl. Tome I., Fasc. I. 8vo.—*From the same.*

Mélanges Mathématiques et Astronomiques, tirés du Bulletin de VOL. V.

l'Académie Impériale des Sciences de S. Petersbourg. Tome III. ^{20 Juin} _{2 Juillet} 1862. 8vo.—*From the Academy.*

Bulletin de la Société Impériale des Naturalistes de Moscou. Nos. II., III., & IV. 8vo.—*From the Society.*

Suez Canal. Report of John Hawkshaw, F.R.S., to the Egyptian Government. 8vo.—*From the Author.*

Reise der öesterreichischen Fregatte Novara um die Erde. Nautisch-physikalischer Theil. IIte. Abtheilung. 4to.—*From the Austrian Government.*

Correspondenz-blatt des Vereins für Naturkunde zu Presburg. I. Jahrgang. 1862. 8vo.—*From Prof. E. Mack.*

Fifteenth Annual Report of the Regents of the University of the State of New York, on the Condition of the State Cabinet of Natural History. 8vo.—*From the U.S. Government.*

Report of the Commissioner of Patents for 1860. Vols. I. and II. 8vo.—*From the U.S. Government.*

Address to the Royal Physical Society of Edinburgh on the Opening of the Ninety-second Session. By Alexander Bryson, Esq. 8vo.—*From the Author.*

Klein on Foretelling the Weather in Connection with Meteorological Observations. Translated from the Dutch by Dr Adriani. 8vo.—*From the Translator.*

Catalogue des Objets d'Antiquité etc. de Feu, M. Jomard. 8vo.—*From the Author.*

Proceedings and Transactions of the Meteorological Society of Mauritius. Vol. V. 8vo.—*From the Society.*

Annual Report of the Yorkshire Philosophical Society for 1862. 8vo.—*From the Society.*

Journal of the Statistical Society of London. Vol. XXVI. Parts II. and III. 8vo.—*From the Society.*

Nederlandsch Kruidkundig Archief onder redactie van W. F. R. Suringar en M. J. Cop. Vifde Deel. Derde Stuk. 8vo.—*From the Editors.*

Schriften der königl. physikalisch-ökonomischen Gesellschaft zu Königsberg. Dritter Jahrgang 1862, 1e u. 2te Abtheil. 4to.—*From the Society.*

Resultate magnetischer u. meteorologischer Beobachtungen auf einer Reise nach dem östlichen Sibirien in den Jahren

1828-30. Von Prof. Hansteen u. Lieutenant Due. 4to.—
From the Authors.

Proceedings of the Royal Physical Society of Edinburgh. Sessions
1858-62. 8vo.—*From the Society.*

Transactions of the Pathological Society of London. Vol. XIV.
8vo.—*From the Society.*

Quarterly Journal of the Geological Society. No. 76.

Compte Rendu de la Commission impériale archéologique pour
l'année 1861 (avec un Atlas). 4to.—*From the Russian
Government.*

Greenwich Observations for 1861. 4to.—*From the Astronomer-
Royal.*

Edinburgh Astronomical Observations. Vol. XII. 8vo.—*From
Prof. Smyth.*

Jahresbericht über die Fortschritte der Chemie, etc. Von H. Kopp
u. H. Will, für 1861. 2te Hälfte. Giessen 1863. 8vo.—
From the Editors.

Mémoires de Société impériale des Sciences naturelles de Cher-
bourg. Tomes VI.-VIII. 8vo.—*From the French Consul.*

Proceedings of the Royal Geographical Society. Vol. VII. Nos.
III., IV., and V. 8vo.—*From the Society.*

Monday, 21st December 1863.

DR CHRISTISON, Vice-President, in the Chair.

The following Communications were read:—

1. On the Morphological Relationships of the Molluscoidea
and Cœlenterata and of their leading members, *inter se.*
By John Denis Macdonald, R.N., F.R.S., Surgeon of
H.M.S. "Icarus." Communicated by Professor Maclagan.
2. On the External Anatomy of a New Mediterranean
Pteropod. By John Denis Macdonald, R.N. Communi-
cated by Professor Maclagan.
3. On the Limits of our Knowledge respecting the Theory of
Parallels. By Professor Kelland.

The Author has in this paper traced to its consequences the

assumption, as if it were an axiom, of the proposition "That the angles of a triangle are together less than two right angles." The results as regards the theory of parallels are such as to imply that such lines would have most of the properties of equal circles exterior to one another.

Professor Tait reminded the Society that, at the close of last session, he and Balfour Stewart, F.R.S., of the Kew Observatory, had deposited with the Secretary a sealed packet containing the coincident results of certain investigations which they had separately carried on from totally distinct points of view, and which appeared to lead to a new principle in Natural Philosophy.

Experimental attempts at verifications of this principle have since been made by them in various ways, and others are in progress. Meanwhile, the authors desire to put on record that it appears probable, from their experiments, that the viscosity, &c., of air are not the only causes of the increased radiation from a moving body. (Compare Joule and Thomson, *Phil. Trans.* 1860.) A vacuum apparatus now in course of construction, will, it is hoped, lead to decisive results.

The following Gentlemen were elected Fellows of the Society:—

ANDREW WOOD, M.D., F.R.C.S.E.

ROBERT WILLIAM THOMSON, Esq., C.E.

The following Donations to the Library were announced:—

Monthly Return of the Births, Deaths, and Marriages Registered in the Four Principal Counties of Scotland. October 1863.

8vo.—*From the Registrar-General.*

Journal of the Royal Geographical Society. No. 32. 8vo.—*From the Society.*

Transactions of the Linnean Society. Vol. XXII., Part II. 4to.—*From the same.*

Journal of the Chemical Society. No. 12. 8vo.—*From the same.*

Transactions of the Royal Society of Literature. Vol. VII., Part III. 8vo.—*From the same.*

American Journal of Science and Arts. No. 108. 8vo.—*From the Editors.*